WHAT IS CLAIMED IS:

1. An apparatus for detecting location of a movable body in a navigation system, the apparatus comprising:

a map data detector for detecting map information of a region corresponding to a location information in an external digital map storage on the basis of location information of the movable body, said location information being transmitted by sensors sensing location coordinates and traveling direction information of the movable body;

a memory for storing said map information detected from the map data detector;

a filter for computing an optimum location information of the movable body including road error included in said map information on the basis of the location coordinates and traveling direction information of the movable body transmitted by said sensors; and

a map-matching unit for receiving the optimum location information of the movable body from the filter and correcting the optimum location information by matching the optimum location information and the map information stored in the memory.

2. The apparatus as claimed in claim 1, wherein the map data detector receives said location information of the movable body from a GPS sensor receiving a GPS signal, and detects said map information of region corresponding to said location information.

3. The apparatus as claimed in claim 1, wherein the filter comprises:

a first filter for receiving said location information of the movable body from the GPS sensor receiving the GPS signal, computing a first location information of the movable body after receiving the traveling direction information, including a velocity and a traveling direction of the movable body from an inertia sensor and transmitting the computed first location information to the map-matching unit;

a second filter for receiving road linear information about said map information matched with said first location information, computing a second location information of the movable body including road error after receiving the traveling direction information,

including said velocity and said traveling direction of the movable body from the inertia sensor; and

a third filter for receiving said first location information of the movable body from the first filter and said second location information of the movable body from the second filter, computing said optimum location information of the movable body, and transmitting said optimum location information to the map-matching unit.

4. The apparatus as claimed in claim 3, wherein the first filter is a global positioning satellite/dead reckoning (GPS/DR) integrated Kalman filter.

5. The apparatus as claimed in claim 3, wherein the second filter is a map constraint filter.

6. The apparatus as claimed in claim 3, wherein the third filter generates filter correction data of the first and second filters on the basis of a computed result of said optimum location information and outputs said filter correction data to the first and the second filter.

7. The apparatus as claimed in claim 6, wherein the filter correction data includes an optimum state computation information and error information of a filter.

8. The apparatus as claimed in claim 1, wherein the map-matching unit

matches first location information with road information stored in the memory after receiving said first location information of the movable body from a first filter,

extracts road linear information for where the movable body is located on the basis of said first location information and said matched map information,

transmits said linear information to a second filter,

matches said optimum location information and said road information stored in the memory after receiving said optimum location information of the movable body from a third filter, and

corrects said optimum location information.

9. The apparatus as claimed in claim 3, wherein the map-matching unit

matches said first location information with road information stored in the memory after receiving said first location information of the movable body from the first filter,

extracts road linear information for where the movable body is located on the basis of said first location information and said matched map information,

transmits said linear information to the second filter,

matches said optimum location information and said road information stored in the memory after receiving said optimum location information of the movable body from the third filter, and

corrects said optimum location information.

10. A method for detecting a location of a movable body in a navigation system, the method comprising the steps of:

1) detecting and storing map information corresponding to location information in response to location coordinates and traveling direction information of the movable body transmitted by sensors sensing a location coordinates and traveling direction information of the movable body, and initializing a GPS/DR filter model ;

2) computing first location information of the movable body on the basis of the GPS/DR filter model;

3) matching said first location information with said stored map information and extracting road linear information for where the movable body is located on the basis of said first location information and said matched map information;

4) initializing a map constraint filter model on the basis of said traveling direction information of the movable body sensed by said sensors and said road linear information extracted in step (3);

5) computing second location information of the movable body including a road error on the basis of a map-limited filter;

6) computing optimum location information of the movable body on the basis of said first location information of the movable body computed in step (2) and said second location information of the movable body computed in step (5);

7) generating filter correction data for correcting a state and an error of the GPS/DR filter model and the map constraint filter model on the basis of said computed optimum location information; and

8) correcting the state and error of the GPS/DR filter model and the map constraint filter model by means of said filter correction data.

11. The method as claimed in claim 10, wherein said filter correction data generated in step (7) includes optimum state computation information and error information of the GPS/DR filter model and the map constraint filter model.